

REMARKS

In response to the above-identified Office Action, Applicants amend the application and seek reconsideration thereof. In this Response, Applicants amend Claim 1. Accordingly, Claims 1-6 are pending.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attachment is captioned "Version With Markings To Show Changes Made."

I. Claims Rejected Under 35 U.S.C. § 112

Applicants note with appreciation the Office's withdrawal of its rejection of Claims 1-6 under 35 U.S.C. § 112, second paragraph.

II. Claims Rejected Under 35 U.S.C. § 102

Applicants note with appreciation the Office's withdrawal of its rejection of Claims 1-6 under 35 U.S.C. § 102(b) as being anticipated by Takami ("Takami"), U.S. Patent No. 5,244,757.

The Office rejects Claims 1-6 under 35 U.S.C. § 102(b) as being anticipated by Kuribayashi et al. ("Battery Characteristics with Various Carbonaceous Materials," *Journal of Power Sources* 54 (1995) 1-5.)

In order to anticipate a claim, the relied upon reference must disclose every limitation of the claim. Among other limitations, amended independent Claim 1 recites the amorphous carbon shell coating is derived from an amorphous carbon precursor solution. In making the rejection, the Office relies on Kuribayashi to disclose a lithium secondary battery which comprises particles of the graphite core

surrounded by an amorphous carbon shell. Particles have a graphite structural part and an amorphous type part (see page 1, lines 10 though end). However, the Applicants respectfully submit what Kuribayashi discloses is a carbonaceous material having an outer shell made of coke-like carbon and a core compound of graphite or pseudo-graphite. The coating method of Kuribayashi is a mechanically-made coating where graphite and carbon precursor are mixed and heat-treated. As is disclosed by Liu et al. ("Liu"), the carbonaceous materials disclosed by Kuribayashi have an outer shell made of coke-like carbon and a core composed of graphite or pseudo-graphite. Each powder consists of natural graphite, spherical artificial graphite and pseudo-graphite from heat-treated mesophase-pitch beads, or polyhedral artificial graphite from coaltar, and was coated with pitch-blended phenol resins (modified phenol resins) in a kneader and then heat-treated at up to 1200°C. This process utilizes mechanical mixing, and the petroleum coke shell from phenol resins was a graphitizable carbon ($d(002)=3.54$). However, because the mechanically-made coating was not much different from the graphite (as shown by the d spacing), it is understood that the diffusion rate of lithium ions and battery performances could not be significantly improved by means of the disclosed technique. (Liu, col. 4, lines 19-38.) Thus, Applicants respectfully submit the coating method of Kuribayashi is not an improvement over graphite alone.

Liu discloses the Kuribayashi mechanically made coating was not much different from graphite. Applicants respectfully submit the critique of Kuribayaashi offered by Liu and recited above obviates the inherency argument offered by the Office.

Additionally, Applicants respectfully submit the failure of Kuribayashi to disclose an amorphous shell coating derived from amorphous carbon precursor solution is fatal to the asserted rejection.

Accordingly, Applicants respectfully request withdrawal of the rejection of independent Claim 1. Claims 2-6 depend from Claim 1. As such, the rejected dependent claims are not anticipated for at least the same reason as their respective independent claim.

The Office rejects Claims 1-6 under 35 U.S.C. § 102(e) as being anticipated by Liu et al. ("Liu"), U.S. Patent No. 5,908,715.

In making the rejection, the Office relies on Liu to disclose particles for use as anodes in lithium secondary batteries. The particles have a graphite structural core surrounded by an amorphous carbon shell (col. 4, lines 10-23). However, Applicants respectfully submit Liu discloses a composite particle comprising graphite core and non-graphitizable carbon material disposed on at least a portion of the outer surface of the graphite core. The graphite core is embedded into a cross-linked polymer (col. 5, lines 57-60 and Examples 1-3). Cross-linking agents such as ethylene diamine (Example 1) or H_3PO_4 (Example 2) or an oxidizing agent such as $(\text{NH}_4)_2\text{S}_2\text{O}_8$ (Example 3) are necessary to cause polymerization of the carbon precursor. Applicants respectfully submit the carbonaceous material of Claim 1 is prepared by coating graphite using an amorphous precursor solution. This amorphous precursor solution does not include a cross-linking agent or an oxidizing agent. The failure of Liu to disclose coating graphite using amorphous precursor solution is fatal to the asserted rejection.

Accordingly, Applicants respectfully request withdrawal of the rejection of independent Claim 1. Claims 2-6 depend from Claim 1. As such, the rejected dependent claims are not anticipated for at least the same reasons as their independent claims.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending (1) are in proper form, (2) are neither obvious nor anticipated by the relied upon art of record, and (3) are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date. If the Office believes that a telephone conference would be useful in moving the application forward to allowance, the Office is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No.

02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP

Date 1/28/02

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on 1/28/02.

Diane Martinez 1/28/02
Diane Martinez Date

Attachment: VERSION WITH MARKINGS TO SHOW CHANGES MADE

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IN THE CLAIMS

The claims have been amended as follows.

1. (Four Times Amended) A carbonaceous active material comprising:
at least one crystalline graphite core; and
an amorphous carbon shell coating the outside of the crystalline graphite core
wherein a differential thermal analysis conducted on the carbonaceous active
material in 10°C increments per minute starting from room temperature and
proceeding to 1000°C at atmospheric pressure results in the displaying of at least two
exothermic peaks overlapping to form shoulders and the amorphous carbon shell
coating is derived from an amorphous carbon precursor solution.